

antenna and a wart on each side of vertex bearing a row of black bristles. Thorax with a broad white stripe in middle, dark brown on the sides; pleuræ yellowish; abdomen brown above, paler beneath. Antennæ pale yellowish brown; legs rather paler, with many black spines; spurs yellowish. Wings hyaline, with gray hairs; venation pale, irregularly marked with brown, the cubitus and anal more heavily marked; pterostigma rather distinct. Hind wings gray hyaline, venation brownish, a brown dot in base of third apical cell; fringe short and brown in both pairs.

Length, 16 mm.

Several specimens, Prescott, June 19 to 25 (Osler).

Type.—In the author's collection.

EXPLANATION OF PLATE IV.

1. *Psocus conspersus*, wing.
2. *Hemerobius schwarzi*, male appendages.
3. *Hemerobius cockerelli*, male appendages (inverted).
4. *Hemerobius perparvus*, male appendages.
5. *Anabolina diversa*, male appendages.
6. *Hemerobius umbratus*, male appendages.
7. *Raphidia minuta*, male appendages.
8. *Hemerobius pacificus*, male appendages.
9. *Chauliodes filicornis*, appendages, top view.
10. *Chauliodes filicornis*, appendages, side view.
11. *Chrysopa schwarzi*, head.
12. *Hydropsyche divisa*, wing.

THE GENERA OF THE DIPTEROUS FAMILY EMPIDIDÆ,
WITH NOTES AND NEW SPECIES.

By D. W. COQUILLET.

The present paper is an attempt to settle the type species of each North American and European genus of Empididæ, and to bring some kind of system out of the present confused condition into which the genera of this family have fallen. Our own fauna is so similar to that of Europe that our students cannot well afford to ignore the latter when working with specimens from this country. Of the generic names adopted in the synoptic table given in my Revision of the North American Empidæ, comparatively few changes are necessary; thus *Hemerodromia* includes more than one genus, and this is also true of *Tachydromia*; *Mantipeza* gives way to *Chelifera*, a much older name; *Rhamphomyia* gives place to the much earlier *Macrostomus*, as *Sciodromia* does to the earlier *Heleodromia*; *Syneches* is replaced by the much earlier *Acromyia*, as *Cyrtoma* is by the earlier *Bicellaria*.

In regard to the earliest date of each genus, the rule has been

adopted that the name dates from its earliest appearance in print if accompanied by a description or by the name of a described species; on the other hand, when both the name of the genus and of the species listed under it are simply manuscript names, it is evident that as yet the genus can have no standing.

HISTORICAL.

In the following list all generic names are given in regular alphabetical order, valid genera in bold-faced type, synonyms in italics.

Acromyia Latreille, Gen. Crust. Ins., iv, 305, 1809. (*Syneches* Walker, 1852; *Pterospilus* Rondani, 1856.)

Type: *Asilus muscarius* Fabricius.

Latreille placed *Acromyia* Bonelli (evidently a MS. name) as a synonym of *Hybos* Meigen, gave a brief description of the genus, and mentioned *Acromyia asiliformis* Bonelli, *Stomoxys asiliformis* Fabricius (= *Asilus muscarius* Fabricius, according to Meigen,* repeated by Schiner†).

Anthalia Zetterstedt, Ins. Lappón., 538, 1838.

Type: *Anthalia gyllenhali* Zetterstedt.

Zetterstedt described three species as new, the first, *A. gyllenhali*.

Anthepiscopus Becker, Wiener Ent. Zeit., x, 281, November 30, 1891.

Type: *Anthepiscopus ribesii* Becker.

Becker described two species as new and figured the first, *A. ribesii*.

Ardoptera Macquart, Ins. Dipt. Nord France, Separata, 106, 1827. (= *Dolichocephala Macquart*, 1823.)

Type: *Tachydromia irrorata* Fallen.

Work not seen by the writer, but Macquart later‡ mentions only one species in this genus, *Tachydromia irrorata* Fallen.

Bergenstammia Mik, Verh. k. k. Ges. Wien 1881, 326, 1882.

Type: *Clinocera nudipes* Loew.

Mik mentioned only one species, *Clinocera nudipes* Loew.

Bicellaria Macquart, Recueil Trav. Soc. Sci. Agr. Arts Lille, 155, 1823. (*Cyrtoma* Meigen, 1824.)

Type: *Empis spuria* Fallen.

Macquart described one species as new, *B. nigra* (= *Empis spuria* Fallen).

Blepharoprocta Loew, Berl. Ent. Zeitsch., vi, 194, May, 1862.

Type: *Brachystoma nigrimana* Loew.

Loew mentioned three species, the first, *Brachystoma nigrimana* Loew.

* Syst. Besch., II, 349.

† Faun. Aus. Dipt., I, 77.

‡ Hist. Nat. Dipt., I, 358, 1834.

Boreodromia Coquillett, new genus.

Type: *Synamphotera bicolor* Loew.

Brachystoma Meigen, Syst. Besch., III, 12, 1822.

Type: *Syrphus vesiculosus* Fabricius.

Meigen described two species, *B. longicornis*, new species, and *Syrphus vesiculosus* Fabricius. Westwood* designated *longicornis* as the type, but referred to the figure of *vesiculosus* as a typical figure. Rondani† selected *longicornis* as the type of his new genus *Trichopeza*, and designated *vesiculosus* as the type of *Brachystoma*.

Chamädipsia Mik, Verh. k. k. Ges. Wien 1881, 326, 1882.

Type: *Clinocera hastata* Mik.

Mik mentioned only one species, *Clinocera hastata* Mik.

Chelifera Macquart, Recueil Trav. Soc. Sci. Agr. Arts Lille, 150, 1823. (*Mantipeza* Rondani, 1856; *Polydromya* Bigot, 1857.)

Type: *Tachydromia præcatoria* Fallen.

Macquart described one species as new, *C. raptor*, but on page 165 he states that it is identical with *Hemerodromia monostigma* Meigen (= *Tachydromia præcatoria* Fallen, according to Schiner,‡ and Loew§).

Chelipoda Macquart, Recueil Trav. Soc. Sci. Agr. Arts Lille, 148, 1823. (*Lepidomyia* Bigot, 1857.)

Type: *Empis melanocephala* Fabricius.

Macquart described two species, *Tachydromia mantispa* Panzer (an erroneous identification, as the species is credited with a discal cell), and *C. minor*, new species, but on page 165 he states that the latter is identical with *Hemerodromia mantispa* Meigen (= *Tachydromia mantispa* Panzer = *Empis melanocephala* Fabricius, according to Meigen,|| and Schiner¶).

Chersodromia Walker, List Dipt. Ins. Brit. Mus., IV, 1157, 1849.

Type: *Tachypeza arenaria* Haliday.

Walker, without describing this genus, referred to *Tachypeza arenaria* Haliday and *Tachydromia graminum* Fallen. Rondani** designated as the type *Tachypeza brevipennis* Zetterstedt (= *Tachypeza arenaria* Haliday, according to Walker†† and Schiner‡‡).

* Introd., II, Synop., 132, 1840.

† Dipt. Ital. Prod., I, 150, 1856.

‡ Fauna Aus., Dipt., I, 83.

§ Wiener Ent. Monat., VIII, 238.

|| Syst. Besch., III, 64.

¶ Faun. Aus., Dipt., I, 86.

** Dipt. Ital. Prod., I, 147, 1856.

†† Ins. Brit., Dipt., I, 138.

‡‡ Fauna Aus., Dipt., I, 96.

Chyromantis Rondani, Dipt. Ital. Prod., 1, 148, 1856. (= *Phylodromia Zetterstedt*, 1837.)

Type: *Tachydromia vocatoria* Fallen.

Rondani designated the above species as the type.

Clinocera Meigen, Illiger's Mag., 11, 271, 1803. (*Paramesia* Macquart, 1835.)

Type: *Clinocera nigra* Meigen.

Meigen mentioned no species. Rondani* designated the above species as the type.

Coloboneura Melander, Trans. Am. Ent. Soc., xxviii, 229, Nov., 1902.

Type: *Coloboneura inusitata* Melander.

Described only the above species.

Crossopalpus Bigot, Ann. Soc. Ent. France, 557, 1857. (= *Tachydromia Meigen*, 1803.)

Type: *Platypalpus ambiguus* Macquart.

Bigot mentioned only the above species.

Cyrtoma Meigen, Syst. Besch., iv, 1, 1824. (= *Bicellaria* Macquart, 1823.)

Type: *Empis spuria* Fallen.

Meigen described three species, the first, *C. atra* (an arbitrary change of name of *Empis spuria* Fallen), was designated as the type by Westwood.†

Dolichocephala Macquart, Recueil Trav. Soc. Sci. Agr. Arts Lille, 147, 1823. (*Ardoptera* Macquart, 1827; *Leptosceles* Haliday, 1833.)

Type: *Tachydromia irrorata* Fallen.

Macquart described one species as new, *D. maculata*, but on page 165 he stated that it is identical with *Hemerodromia irrorata* Meigen (= *Tachydromia irrorata* Fallen).

Drapetis Meigen, Syst. Besch., III, 91, 1822.

Type: *Drapetis exilis* Meigen.

Described one species as new, *D. exilis*.

Dryodromya Rondani, Dipt. Ital. Prod., 1, 150, 1856. (= *Hilara Meigen*, 1822.)

Type: *Empis tenella* Fallen.

Rondani designated as the type *Dryodromya testacea*, new species (evidently founded on a specimen of *Empis tenella* Fallen with a supernumerary cross-vein in the second submarginal cell). Mik‡ wrongly refers this genus as a synonym of *Tachydromia*, apparently overlooking the fact that Rondani placed it in the section in which the third vein is forked.

* Dipt. Ital. Prod., 1, 149, 1856.

† Introd., 11, Synop., 133, 1840.

‡ Ent. Nachrichten, xii, 324, 1886.

Dysaletria Loew, Zeitsch. Ent. Breslau, xiv, 7, 1860.
(= *Platypalpus Macquart*, 1827.)

Type: *Tachypeza atriceps* Boheman.

Loew described one species, *Tachypeza melanocephala*, which he credited to Boheman, but it is evident from his references as well as from his description that the name *melanocephala* is an error for *atriceps*. This has already been pointed out by Röder.*

Elaphropeza Macquart, Ins. Dipt. Nord France, Separata, 86, 1827.

Type: *Tachydromia ephippiata* Fallen.

Work not seen by the writer, but Macquart later† mentions only one species in this genus, *Tachydromia ephippiata* Fallen.

Empimorpha Coquillett, Proc. U. S. Nat. Mus., xviii, 396, June, 1896.

Type: *Empimorpha comantis* Coquillett.

Designated the above species as the type.

Empis Linné, Syst. Natur., Ed. 10, 603, 1758. (*Platypterygia* Stephens, 1829; *Eriogaster* Macquart, 1838; *Enoplemphis* Bigot, 1880; *Steleocheta* Becker, 1887.)

Type: *Empis pennipes* Linné.

Linné described three species as new, *E. borealis*, *pennipes* and *livida*. Latreille‡ designated as the type *Empis pennipes* Fabricius (= Linné).

Enicopteryx Stephens, Syst. Cat. Brit. Ins., 264, 1829. (= *Macrostomus Wiedemann*, 1817.)

Type: *Rhamphomyia infuscata* Meigen.

Stephens listed three species, *Empis fusca* (a manuscript name), *Rhamphomyia infuscata* Meigen, and *hyalinipennis*, new species (with *Rhamphomyia anomalipennis* Meigen as its synonym). Westwood§ designated *Rhamphomyia infuscata* Meigen as the type.

Enoplemphis Bigot, Ann. Soc. Ent. France, Bull., xlvii, 1880 (= *Empis Linné*, 1758).

Type: *Enoplemphis mira* Bigot.

Bigot described only one species as new, *E. mira*.

Eriogaster Macquart, Dipt. Exot., 1, Part 2, 162, 1838; not of Germar, 1811. (= *Empis Linné*, 1758.)

Type: *Empis laniventris* Eschscholtz.

Macquart designated the above species as the type of this genus.

* Wiener Ent. Zeit., III, 291, Dec. 15, 1884.

† Hist. Nat. Dipt., 1, 359, 1834.

‡ Consid. Gen., 443, 1810.

§ Introd., II, Synop., 131, 1840.

Eucelidia Mik, Verh. k. k. Ges. Wien 1881, 326, 1882.

Type: *Empis zetterstedti* Fallen.

Mik mentioned *Brachystoma escheri* Zetterstedt, *Empis zetterstedti* Fallen and *Clinocera pirata* Mik, figuring a wing and femur of the second species.

Euhybubus Coquillett, Proc. U. S. Nat. Mus., xviii, 437, June, 1896.

Type: *Hybos purpureus* Walker.

Mentioned three species, *Hybos subjectus* Walker, *H. purpureus* Walker, and *H. triplex* Walker.

Euthyneura Macquart, Ann. Soc. Ent. France, 517, 1836.

Type: *Euthyneura myrtilli* Macquart.

Described only the above species.

Gloma Meigen, Syst. Besch., III, 14, 1822.

Type: *Gloma fuscipennis* Meigen.

Described only the above species.

Heleodromia Haliday, Entom. Mag., I, 159, 1833. (*Microcera* Zetterstedt, 1838; *Sciodromia* Haliday, 1840.)

Type: *Heleodromia immaculata* Haliday.

Haliday described four species as new, *H. immaculata*, *bipunctata*, *stagnalis* and *fontinalis*. Curtis* designated *immaculata* as the type, and this was repeated by Macquart,† who placed *bipunctata* and *stagnalis* in his new genus *Hydrodromia*.

Hemerodromia Meigen, Syst. Besch., III, 61, 1822. (*Microdromia* Bigot, 1857.)

Type: *Tachydromia oratoria* Fallen.

Meigen described nine species, the fifth, *Tachydromia mantispa* Panzer, was designated as the type by Westwood,‡ but this species had previously been placed by Macquart in his new genus *Chelipoda*. Rondani§ designated as the type *Tachydromia oratoria* Fallen, the third species described by Meigen.

Hilara Meigen, Syst. Besch., III, 1, 1822. (*Dryodromia* Rondani, 1856.)

Type: *Empis maura* Fabricius.

Meigen described twenty-one species, the second of which, *Empis maura* Fabricius, was designated as the type by Curtis.||

* Brit. Entom., 519, 1834.

† Hist. Nat. Dipt., II, 658, 1835.

‡ Introd., II, Synop., 132, 1840.

§ Dipt. Ital. Prod., I, 148, 1856.

|| Brit. Entom., 130, 1826.

Holoclera Schiner, Wiener Ent. Monat., iv, 53, February, 1860.

Type: *Holoclera pulchra* Egger.

Schiner designated as the type the above species which at that time was evidently undescribed.

Hormopeza Zetterstedt, Ins. Lappon., 540, 1838.

Type: *Hormopeza obliterata* Zetterstedt.

The above was the only species mentioned.

Hybos Meigen, Illiger's Mag., II, 269, 1803. (*Lactistomyia* Melander, 1902.)

Type: *Musca grossipes* Linné.

Meigen mentioned no species. Curtis* designated as the type *Hybos fuscibris* Fabricius (= *Musca grossipes* Linné, according to Walker,† repeated by Schiner).‡

Hydrodromia Macquart, Hist. Nat. Dipt., II, 658, 1835.

Type: *Heleodromia stagnalis* Haliday.

Macquart described two species, *Heleodromia bipunctata* Haliday and *H. stagnalis* Haliday. Mik§ transferred *H. bipunctata* to his new genus *Kowarzia*.

Iteaphila Zetterstedt, Ins. Lappon., 540, 1838.

Type: *Iteaphila macquarti* Zetterstedt.

The above was the only species mentioned.

Kowarzia Mik, Verh. k. k. Ges. Wien 1881, 325, 1882.

Type: *Clinocera barbatula* Mik.

Mentioned four species and figured a wing and the head of the first one, *Clinocera barbatula* Mik.

Lactistomyia Melander, Trans. Am. Ent. Soc., xxviii, 250, Nov., 1902. (= *Hybos Meigen*, 1803.)

Type: *Lactistomyia insolita* Melander.

Described one species as new, *L. insolita*, from Brazil. The characters on which this genus was founded are the thickened and tuberculate hind femora of the male, but in the males of one species in the related genus *Euhybus* these characters are present but are wanting in the females, as well as in both sexes of closely related species. The characters therefore are not only confined to one sex but are plainly not of generic importance.

Lamposoma Becker, Berl. Ent. Zeitsch., xxxiii, 338, 1889.

Type: *Lamposoma cavaticum* Becker.

The above was the only species mentioned.

* Brit. Entom., 661, 1837.

† Ins. Brit., Dipt., I, 120

‡ Faun. Aus., Dipt., I, 78.

§ Verh. k. k. Ges. Wien 1881, 325, 1882.

Lamprempis Wheeler and Melander, Biol. C.-Am., Dipt., 1, 366, Dec., 1901.

Type: *Empis chichimeca* Wheeler and Melander.

Placed this as a subgenus of *Empis* and gave a synoptic table of six species, the fourth, *Empis chichimeca*, new species.

Lepidomya Bigot, Ann. Soc. Ent. France, 557, 1857. (= *Che-lipoda Macquart*, 1823.)

Type: *Empis melanocephala* Fabricius.

Bigot mentioned only one species, *Hemerodromia mantispa* Meigen (= *Empis melanocephala* Fabricius, according to Meigen,* repeated by Schiner).†

Leptopeza Macquart, Ins. Dipt. Nord France, Separata, 143, 1827.

Type: *Ocydromia flavipes* Meigen.

Work not seen by the writer, but Macquart later‡ placed in this genus only one species, *Leptopeza flavipes* Macquart (= *Ocydromia flavipes* Meigen).

Leptosceles Haliday, Entom. Mag., 1, 160, 1833. (= *Dolichocephala Macquart*, 1823.)

Type: *Leptosceles guttata* Haliday.

Haliday described three species, the first, *L. guttata*, new species.

Litanomyia Melander, Trans. Am. Ent. Soc., xxviii, 231, Nov., 1902. (= *Phyllodromia Zetterstedt*, 1837.)

Type: *Sciodromia mexicana* Wheeler and Melander.

Melander described two species and figured the first, *Sciodromia mexicana* Wheeler and Melander.

Macroptera Becker, Wiener Ent. Zeit., viii, 80, Feb. 28, 1889; not of Liroy, 1863. (= *Symballophthalmus Becker*, 1889.)

Type: *Macroptera pictipes* Becker.

The above was the only species mentioned by Becker.

Macrostomus Wiedemann, Zool. Mag., 1, Part 1, 60, 1817. (*Rhamphomyia* Meigen, 1822; *Enicopteryx* Stephens, 1829; *Rhamphomyza* Zetterstedt, 1838; *Megacyttarus* Bigot, 1880.)

Type: *Hybos ferrugineus* Fabricius.

Wiedemann mentioned only the above species, from South America, and later states§ that this genus is identical with *Rhamphomyia*.

Mantipeza Rondani, Dipt. Ital. Prod., 1, 148, 1856. (= *Che-lifera Macquart*, 1823.)

Type: *Tachydromia præcatoria* Fallen.

* Syst. Besch., III, 64.

† Faun. Aus., Dipt., 1, 86.

‡ Hist. Nat. Dipt., 1, 321, 1834.

§ Aus. Zweif. Ins., 11, 10, 1830.

Rondani designated as the type *Hemerodromia monostigma* Hoffmann-segg (= Meigen). This is given as a synonym of *Tachydromia præcatoria* Fallen by Schiner* and by Loew.†

Megacyttarus Bigot, Ann. Soc. Ent. France, Bull., XLVII, 1880. (= *Macrostomus Wiedemann*, 1817.)

Type: *Rhamphomyia limbata* Loew.

Bigot described one species as new, *M. argenteus*; this is identical with *Rhamphomyia limbata* Loew according to Coquillett.‡

Meghyperus Loew, Stett. Ent. Zeit., XI, 303, Sept., 1850.

Type: *Meghyperus sudeticus* Loew.

The above was the only species mentioned.

Metachela Coquillett, new genus.

Type: *Hemerodromia collusor* Melander.

Microcera Zetterstedt, Ins. Lappon., 572, 1838; not of Meigen, 1803, nor of Mannerheim, 1830. (= *Heleodromia Haliday*, 1833.)

Type: *Heleodromia immaculata* Haliday.

Zetterstedt described one species as new, *M. rostrata*, identical with *Heleodromia immaculata* Haliday according to Walker,§ and repeated by Schiner.||

Microcyrta Bigot, Ann. Soc. Ent. France, 557, 1857. (= *Platytelma Rondani*, 1856.)

Type: *Cyrtoma pallipes* Meigen.

The above is the only species referred to by Bigot.

Microdromya Bigot, Ann. Soc. Ent. France, 557, 1857. (= *Hemerodromia Meigen*, 1822.)

Type: *Tachydromia oratoria* Fallen.

Bigot mentioned no species, but the characters he gave must, in all probability, have been drawn from the above species.

Microphorus Macquart, Ins. Dipt. Nord France, Separata, 14, 1827.

Type: *Microphorus velutinus* Macquart.

Work not seen by the writer. Rondani¶ designated as the type *Microphorus velutinus* Macquart, the second species described by Macquart.

Mythicomyia Coquillett, Ent. News, 208, June, 1893.

Type: *Mythicomyia rileyi* Coquillett.

* Faun. Aus., Dipt., 1, 83.

† Wiener Ent. Monat., VIII, 238.

‡ Proc. U. S. Nat. Mus., XVIII, 388, June, 1896.

§ Ins. Brit., Dipt., 1, 107.

|| Faun. Aus., Dipt., 1, 86.

¶ Dipt. Ital. Prod., 1, 151, 1856.

The above was the only species mentioned.

Neocota Coquillett, Proc. U. S. Nat. Mus., XVIII, 434, June, 1896.

Type: *Neocota weedi* Coquillett.

The above species was designated as the type.

Neoplasta Coquillett, Proc. U. S. Nat. Mus., XVIII, 392, June, 1896.

Type: *Hemerodromia scapularis* Loew.

Coquillett designated the above species as the type.

Ocydromia Meigen, Syst. Besch., II, 351, 1820.

Type: *Empis glabricula* Fallen.

Meigen described five species, the first, *Empis glabricula* Fallen, was designated the type by Westwood.*

Ædalea Meigen, Syst. Besch., II, 355, 1820. (*Xiphidicera* Macquart, 1834.)

Type: *Empis hybotina* Fallen.

Meigen described two species, *Empis hybotina* Fallen and *E. minuta* Fallen; the latter was selected in 1834 by Macquart as the type of his new genus *Xiphidicera*, leaving *hybotina* as the type of *Ædalea*, and it was so designated by Westwood.†

Oreogeton Schiner, Wiener Ent. Monat., IV, 53, Feb., 1860.

Type: *Gloma basalis* Loew.

The above species was designated as the type.

Oreothalia Melander, Trans. Am. Ent. Soc., XXVIII, 232, Nov., 1902.

Type: *Oreothalia pelops* Melander.

The above was the only species mentioned.

Pachymeria Stephens, System. Catal., 262, 1829. (*Pachymerina* Macquart, 1834.)

Type: *Empis femorata* Fabricius.

Stephens listed two species, *Empis ruralis* Meigen and *aprica*, new species; the latter is a manuscript name, while the former is identical with *Empis femorata* Fabricius, according to Schiner.‡

Pachymerina Macquart, Hist. Nat. Dipt., I, 333, 1834. (= *Pachymeria Stephens*, 1829.)

Type: *Empis femorata* Fabricius.

Macquart described four species and figured the first, *Empis femorata* Fabricius.

* Introd., II, Synop., 133, 1840.

† Introd., II, Synop., 133, 1840.

‡ Faun. Aus., Dipt., I, 110.

Pachypeza Lioy, Atti Ins. Ven., 723, 1864; not of Serville, 1835. (= *Platytelma Rondani*, 1856.)

Type: *Cyrtoma pallipes* Meigen.

Lioy mentioned only the above species.

Paramesia Macquart, Hist. Nat. Dipt., II, 656, 1835; not of Stephens, 1829. (= *Clinocera Meigen*, 1803.)

Type: *Paramesia wesmaelii* Macquart.

Macquart described two species as new and figured the first, *P. wesmaelii*.

Parathalassius Mik, Wiener Ent. Zeit., x, 217, July 31, 1891.

Type: *Parathalassius blasigii* Mik.

The above was the only species mentioned.

Phäobalia Mik, Verh. k. k. Ges. Wien 1881, 326, 1882.

Type: *Clinocera trinotata* Mik.

Mentioned four species, the first, *Clinocera trinotata* Mik.

Philolutra Mik, Verh. k. k. Ges. Wien 1881, 327, 1882. (= *Röderia Mik*, 1882.)

Type: *Clinocera phantasma* Mik.

Mentioned eight species, the first, *Clinocera phantasma* Mik. The difference in the acrostichal bristles, which extend across the mesonotum in one so-called genus and are confined to the anterior portion in the other, cannot be considered of generic value, especially in view of the fact that a very closely related species from Italy has no acrostichals whatever.

Phoneutisca Loew, Berl. Ent. Zeitsch., VII, 19, June, 1863.

Type: *Phoneutisca bimaculata* Loew.

The above was the only species mentioned.

Phoroxypa Rondani, Dipt. Ital. Prod., I, 146, 1856.

Type: *Tachydromia longicornis* Meigen.

The above species was designated as the type.

Phyllodromia Zetterstedt, Isis von Oken, 31, 1837. (*Chyromantis* Rondani, 1856; *Thamnodromia* Mik, 1886; *Litanomyia* Melander, 1902.)

Type: *Tachydromia vocatoria* Fallen.

Zetterstedt briefly described this as a section of *Hemerodromia*, and listed three described and two manuscript species; of the former, Macquart had in 1823 selected the first and fourth species for two of his new genera, leaving only one of the described species, *Tachydromia vocatoria* Fallen, the second species listed by Zetterstedt.

Platypalpus Macquart, Ins. Dipt. Nord France, Separata, 194, 1827. (*Dysaletria* Loew, 1860.)

Type: *Musca cursitans* Fabricius.

Work not seen by the writer. Westwood* designated as the type *Musca cursitans* Fabricius, the nineteenth species described in a later work by Macquart.†

Platyptera Meigen, Illiger's Mag., II, 269, 1803.

Type: *Empis platyptera* Panzer.

Meigen mentioned two species, *Empis borealis* Fabricius (= Linné) and *E. platyptera* Panzer; the first species belongs to the previously erected genus *Empis*.

Platypterygia Stephens, System. Catal., 263, 1829. (= *Empis* Linné, 1758.)

Type: *Empis borealis* Linné.

Stephens listed only the above species.

Platytelma Rondani, Dipt. Ital. Prod., I, 138, 1856. (*Microcyrta* Bigot, 1857; *Pachypeza* Liroy, 1864.)

Type: *Cyrtoma pallipes* Meigen.

Rondani designated the above species as the type.

Polydromya Bigot, Ann. Soc. Ent. France, 557, 1857. (= *Chelifera* Macquart, 1823.)

Type: *Tachydromia præcatoria* Fallen.

Bigot mentioned no species, but the characters given accord well with the imperfect figure by Meigen‡ intended to represent *Tachydromia præcatoria* Fallen.

Pterospilus Rondani, Dipt. Ital. Prod., I, 152, 1856. (= *Acromyia* Latreille, 1809.)

Type: *Asilus muscarius* Fabricius.

Rondani designated as the type the above species under the generic name of *Hybos*.

Ragas Walker, Entom. Mag., IV, 229, 1837. (*Synamphoteria* Loew, 1858.)

Type: *Ragas unica* Walker.

Walker mentioned only the above species.

Rhamphomyia Meigen, Syst. Besch., III, 42, 1822. (= *Macrostomus* Wiedemann, 1817.)

Type: *Empis sulcata* Fallen.

Meigen described 37 species, the ninth, *Rhamphomyia sulcata* Meigen (= *Empis sulcata* Fallen) was designated as the type by Curtis.§

Rhamphomyza Zetterstedt, Ins. Lappon., 562, 1838. (= *Macrostomus* Wiedemann, 1817.)

* Introd. II. Synop., 132, 1840.

† Hist. Nat. Dipt., I, 355, 1834.

‡ Syst. Besch., III, pl. 23, fig. 13.

§ Brit. Entom., 517, 1834.

Type: *Empis sulcata* Fallen.

Arbitrary change in spelling *Rhamphomyia*; the twelfth species that Zetterstedt described is *Empis sulcata* Fallen.

Röderia Mik, Verh. k. k. Ges. Wien 1881, 326, 1882.
(*Philolutra* Mik, 1882.)

Type: *Clinocera longipennis* Mik.

The above was the only species mentioned.

Roederiodes Coquillett, Aquat. Ins. Adiron., 585, Sept., 1901.

Type: *Roederiodes juncta* Coquillett.

The above was the only species mentioned.

Sciodromia Haliday, in Westwood's Introd., 11, Synop., 132, 1840. (= *Heleodromia Haliday*, 1833.)

Type: *Heleodromia immaculata* Haliday.

The above species was designated as the type.

Sicus Latreille, Precis, 158, 1796; not of Scopoli, 1763.
(= *Tachydromia Meigen*, 1803.)

Type: *Musca cimicoides* Fabricius.

Latreille mentioned no species, but in a later work* he designated the above species the type.

Steleocheta Becker, Berl. Ent. Zeitsch., xxxi, 129, Aug., 1887.
(= *Empis Linné*, 1758.)

Type: *Steleocheta setacea* Becker.

The above was the only species mentioned.

Stilpon Loew, Neue Beitr., vi, 34, 1859.

Type: *Tachydromia graminum* Fallen.

Loew mentioned two species, the first, *Tachydromia graminum* Fallen.

Symballophthalmus Becker, Wiener Ent. Zeit., viii, 285, Oct. 5, 1889. (*Macroptera* Becker, 1889; not of Lioy, 1863.)

Type: *Macroptera pictipes* Becker.

Change of name for *Macroptera* Becker, preoccupied.

Synamphotera Loew, Zeitsch. Ges. Naturw., xi, 455, 1858.
(= *Ragas Walker*, 1837.)

Type: *Synamphotera pallida* Loew.

The above was the only species mentioned.

Syndyas Loew, Ofvers. Kon. Vet.-Akad. Forh., xiv, 369, Oct. 14, 1857.

Type: *Syndyas opaca* Loew.

Described two species as new (from Caffraria, Africa), the first, *S. opaca*.

*Consid. General., 443, 1810.

Syneches Walker, Ins. Saund., 1, 165, 1852. (= *Acromyia Latreille*, 1809.)

Type: *Syneches simplex* Walker.

The above was the only species mentioned by Walker.

Tachista Loew, Zeitsch. Ent. Breslau, XIV, 7, 1860. (= *Tachydromia Meigen*, 1803.)

Type: *Tachydromia connexa* Meigen.

Loew described eleven species, the sixth being *Tachydromia connexa* Meigen.

Tachydromia Meigen, Illiger's Mag., II, 269, 1803. (*Sicus* Latreille, 1796, not of Scopoli, 1763; *Crossopalpus* Bigot, 1857; *Tachista* Loew, 1860.)

Type: *Tachydromia connexa* Meigen.

Meigen mentioned two species, *Musca cursitans* Fabricius and *Musca cimicoides* Fabricius; the first belongs to the subsequently erected genus *Platypalpus*, while the second was an erroneous identification to which Meigen afterward gave the name of *T. connexa*.*

Tachypeza Meigen, Syst. Besch., VI, 341, 1830.

Type: *Tachydromia nubila* Meigen.

Meigen referred to ten species. Rondani† designated as the type the eighth species, *Tachydromia nervosa* Meigen, identical with the earlier *T. nubila* Meigen, according to Loew.‡

Thannodromia Mik, Wiener Ent. Zeit., V, 278, Oct. 12, 1886. (= *Phyllodromia Zetterstedt*, 1837.)

Type: *Tachydromia vocatoria* Fallen.

Change of name for *Phyllodromia* Zetterstedt under the erroneous impression that the latter is preoccupied by *Phyllodromia* Serville, 1839.

Trichina Meigen, Syst. Besch., VI, 335, 1830.

Type: *Trichina clavipes* Meigen.

Described two species as new. Rondani§ designated as the type the second species, *T. clavipes*.

Trichopeza Rondani, Dipt. Ital. Prod., I, 150, 1856.

Type: *Brachystoma longicornis* Meigen.

Rondani designated the above species as the type.

Wiedemannia Zetterstedt, Ins. Lappon., 559, 1838.

Type: *Heleodromia bistigma* Curtis.

Zetterstedt described two species, the first, *W. borealis* "Zett., It. Lappon., 1832, 207" (evidently up to that time a manuscript name), is identi-

* Syst. Besch., III, 70, 1822.

† Dipt. Ital. Prod., I, 147, 1856.

‡ Zeitsch. Ent. Breslau, XIV, 12.

§ Dipt. Ital. Prod., I, 152, 1856.

11. Front femora not noticeably thickened..... 12
 Front femora considerably thickened, third antennal joint oval, the arista elongated..... *Phyllostromia* Zett.
12. Third joint of antennæ elongated and rather narrow, at least twice as long as wide, usually longer than the thickened style..... 15
 Third joint oval, the arista elongated and bristle-like, femora not thickened..... 13
 Third joint short and wide, at most one and three-fourths times as long as wide, the apical portion sometimes prolonged styliform,
Anthalia Zett.
13. Proboscis much shorter than height of head..... 14
 Proboscis as long as height of head, axillary angle of wings only slightly projecting..... *Heleodromia* Hal.
14. Antennæ as long as the arista, axillary angle distinctly projecting,
Parathalassius Mik.
 Antennæ only half as long as the arista, axillary angle only slightly projecting..... *Oreothalia* Mel.
15. Axillary angle strongly projecting..... 16
 Axillary angle not projecting, anal cell much shorter than the second basal, its lower outer angle rounded, the crossvein at its apex only slightly oblique, proboscis slightly longer than height of head, directed downward (type, *Synamphoteria bicolor* Loew,
Boreodromia, n. gen.
16. Height of head less than length of proboscis..... 19
 Height of head greater than length of proboscis..... 17
17. Hind femora not thickened..... 18
 Hind femora considerably thickened, spinose on the under side,
Edalea Meig.
18. Stigma contiguous to apex of second vein, sixth vein prolonged to the wing-margin..... *Trichina* Meig.
 Stigma contiguous to apex of first vein, or obsolete; sixth vein obliterated beyond apex of anal cell..... *Microphorus* Macq.
19. Direction of proboscis forward..... 20
 Direction of proboscis downward..... 21
20. Base of discal cell pointed, stigma at apex of first vein, arista minute,
Antheπισcopus Beck.
 Base of discal cell pointed, arista rather long..... *Holoclera* Schin.
 Base of discal cell truncated, stigma at apex of second vein,
Euthyneura Macq.
21. Wings of female (male unknown) unusually broad, three-fourths as broad as long, subtruncated at the apex..... *Platyptera* Meig.
 Wings not unusually broad, the apex rounded..... 22
22. Face bare..... *Macrostomus* Wied.
 Face hairy..... *Neocota* Coq.
23. Fourth vein forked, the base of the upper branch sometimes obliterated..... 28
 Fourth vein simple..... 24

24. Femora of front legs thickened, those of middle legs spinose on the under side..... 26
 Femora not thickened, those of middle legs not spinose..... 25
25. Anal cell only reaching middle of the second basal cell,
Symballophthalmus Beck.
 Anal cell nearly reaching apex of the second basal... *Platytelma* Rond.
26. Sixth vein present, sometimes indistinct..... 27
 Sixth vein wholly wanting, second basal cell longer than the first, third joint of antennæ short-oval *Tachypeza* Meig.
27. Last antennal joint oval, shorter than the artista... *Platypalpus* Macq.
 Last joint elongated, longer than the artista..... *Phoroxypa* Rond.
28. Front femora thickened, axillary angle of wings not projecting,
Chelipoda Macq.
 Front femora slender, axillary angle of wings strongly projecting,
Bicellaria Macq.
29. Antennal arista apical..... 31
 Antennal arista dorsal or subapical..... 30
30. Palpi narrow, as long as the proboscis, second vein near its apex bent forward at nearly a right angle.. *Phoneutisca* Loew.
 Palpi broad, front of an equal width..... *Stilpon* Loew.
31. First pair of femora thickened..... 32
 First pair of femora not thickened 33
32. Eyes contiguous or nearly so below the antennæ, hind tibiæ bearing at most two or three bristles..... *Tachydromia* Meig.
 Eyes widely separated below the antennæ, hind tibiæ bearing many bristles..... *Colobouneura* Mel.
33. Third joint of antennæ short-oval..... 34
 Third joint elongated..... *Elaphropeza* Macq.
34. Second basal cell equal to or shorter than the first,
Chersodromia Walk.
 Second basal cell longer than the first..... *Drapetis* Meig.
35. Anal cell present..... 36
 Anal cell wholly united with the axillary, discal cell united with one of the others, fourth vein forked..... *Hemerodromia* Meig.
36. Second posteria cell long-petiolate..... 62
 Second cell sessile or nearly so..... 37
37. Discal cell separated from the second basal..... 38
 Discal cell united to the second basal..... *Neoplasta* Coq.
38. Arista much longer than the third antennal joint..... 39
 Arista at most as long as the third antennal joint, the latter usually elongated..... 55
39. Axillary angle strongly projecting..... 52
 Axillary angle not or only slightly projecting..... 40
40. Last joint of antennæ short-oval, proboscis shorter than height of head.... 41
 Last joint narrow and greatly elongated, proboscis as long as height of head, directed downward..... *Trichozeza* Rond.

41. Veins two and three sinuous, wings grayish, marked with hyaline dots *Dolichocephala* Macq.
 Veins not sinuous, wings never marked in this manner.....42
42. Face bare..... 43
 Face hairy, the sides separated by a groove from the narrow cheeks,
 hind crossvein very angular, lower inner corner of third posterior
 cell acute.....*Kowarzia* Mik.
43. Body usually opaque, under side of middle and hind femora at most
 with a preapical bristle..... 44
 Body polished, middle or hind femora usually bearing several bristles
 on the under side.....*Brachystoma* Meig.
44. Hind crossvein nearly straight and perpendicular, lower inner angle
 of third posterior cell almost rectangular, sides of face separated by
 grooves from the very narrow cheeks 45
 Hind crossvein very angular, or very oblique, lower inner angle of
 third posterior cell acute 47
45. Pulvilli and empodia well developed, scutellum bare except the marg-
 inal pair of bristles..... 46
 Pulvilli and empodia rudimentary, scutellum bearing more than a pair
 of marginal bristles.....*Bergenstammia* Mik.
46. Stigma wanting.....*Hydrodromia* Macq.
 Stigma distinct....*Phäobalia* Mik.
47. Empodia and pulvilli well developed 48
 Empodia and pulvilli rudimentary, sides of face separated by grooves
 from the narrow cheeks, scutellum bare except for the pair of mar-
 ginal bristles.....*Lamposoma* Beck.
48. Wings having the narrow stigma situated nearer to first vein than to
 apex of second, or wanting 49
 Wings having the rounded stigma situated nearer to apex of second
 vein than to the first, scutellum bearing several short bristles besides
 the long marginal pair, sides of face not separated by grooves from
 the broad cheeks.....*Wiedemannia* Zett.
49. Femora without preapical bristles..... 50
 Femora with a pair of such bristles, scutellum bearing short bristles
 besides the marginal pair, sides of face not separated by grooves
 from the broad cheeks.....*Eucelidia* Mik.
50. Sides of face not separated by grooves from the broad cheeks..... 51
 Sides of face separated by grooves from the narrow cheeks, scutellum
 bearing a marginal pair of bristles, otherwise bare. *Clinocera* Meig.
51. Scutellum bearing a pair of marginal bristles, otherwise bare, short
 bristles in the dorsocentral rows on the thorax...*Chamädiptera* Mik.
 Scutellum bearing short bristles in addition to the marginal pair,
Röderia Mik.
52. Arista slender, bristle-like..... 53
 Arista thick, style-like, proboscis thick, horizontal, anal cell shorter
 than the second basal.....*Oreogeton* Schin.

53. Crossvein at apex of anal cell nearly perpendicular to the hind margin of the wing..... 54
 Crossvein nearly parallel with hind margin of wing, proboscis thick, nearly as long as height of head, almost perpendicular,
Gloma Meig.
54. Anterior branch of third vein terminating in the costa,
Brachystoma Meig.
 Anterior branch terminating in the second vein,
Blepharoprocta Loew.
55. Upper side of body never metallic..... 56
 Upper side of body metallic green, brassy, or bluish,
Lamprempis W. & M.
56. Proboscis at most as long as height of head..... 57
 Proboscis longer than height of head, crossvein at apex of anal cell parallel with hind margin of the wing..... 59
57. Axillary angle strongly projecting..... 58
 Axillary angle only slightly projecting, crossvein at apex of anal cell nearly perpendicular to the hind margin of the wing.. *Ragas* Walk.
58. Antennæ three-jointed, the third joint conical, arista rather long,
Hilara Meig.
 Antennæ very short, apparently two-jointed, the third joint oval, arista and proboscis very short..... *Hormopeza* Zett.
59. Direction of proboscis downward 60
 Direction of proboscis forward, arista very short..... *Iteaphila* Zett.
60. Face bare..... 61
 Face hairy..... *Empimorpha* Coq.
61. Hind legs not longer than the others, hind femora much thickened, eyes separated..... *Pachymeria* Steph.
 Hind legs longer than the others, hind femora not or only slightly thickened *Empis* Linn.
62. Front femora thickened..... 63
 Front femora slender..... *Roederiodes* Coq.
63. Discal cell united with one of the other cells (type, *Hemerodromia collusor* Melander)..... *Metachela*, n. gen.
 Discal cell separate, distinct..... *Chelifera* Macq.

NOTES.

Microphorus flavipilosus Coq., *M. crocatus* Coq., and *M. ravidus* Coq., all belong to *Microphorus*, as originally referred, while *M. atratus* Coq. belongs more properly to *Anthalia*.

The genera *Holoclera* and *Euthyneura* do not occur in this country, so far as I am aware. *Holoclera bilineata* Melander belongs to *Microphorus*, while *H. sycophantor* Melander belongs to *Anthalia*. *Euthyneura aperta* Melander, *E. stentor* Melander, and *E. atripes* Melander, are all referable to *Microphorus*; while *E. nura* Melander and *E. bulbosa* Melander

belong to *Anthalia*. *Euthyneura bucinator* Melander was founded on a single specimen without antennæ, and its generic position cannot be given.

Sciodromia palliata Coquillett belongs to *Microphorus*.

Empis conjuncta Coquillett has more affinity with typical species of *Empis* than with those of any other genus; from *Ragas* it differs widely, especially in the strongly projecting axillary angle, in the venation, mouth parts, etc.

Hilara viridis Coq. belongs to the subsequently erected genus *Lamprempis*, as suspected by Prof. T. D. A. Cockerell in a recent letter to the writer.

Synamphotera bicolor Loew is given above as the type of the new genus *Boreomyia*.

Our species originally described under the old genera *Hemerodromia* and *Mantipeza* may be listed as follows:

Chelifera: *albipes* Walker, *notata* Loew, *obsoleta* Loew, *palloris* Coquillett and *valida* Loew.

Hemerodromia: *captus* Coquillett, *defessa* Williston, *empiformis* Say, *rogatoris* Coquillett and *superstitiosa* Say.

Neoplasta: *mexicana* Melander and *scapularis* Loew.

Metachela: *collusor* Melander and *defecta* Loew.

Hydrodromia stagnalis Haliday has been recorded from Greenland by Lundbeck.*

I am unable at present to assign to their proper genera our species described under the old genera *Hybos* and *Clinocera*, owing to the insufficiency of the descriptions and the lack of specimens.

Wheeler and Melander† state that *Hybos triplex* Walker, *H. purpureus* Walker, *H. duplex* Walker, and *H. subjectus* Walker comprise only one species, and this is repeated by Mr. Melander.‡ When preparing my Revision of the Empidæ I constructed the following table, but omitted its publication. While the names assigned to the species may not be correct in every instance, owing to Walker's superficial descriptions, yet every conscientious student must admit that there are three valid species:

1. Hind tarsi of male bearing a row of stout black spines on the outer side of the first joint, femora without tubercles,

Euhybus subjectus Walk.

 Hind tarsi without black spines..... 2
2. Hind femora of male bearing on the outer third of the under side several elongated tubercles, each tipped with a short spine, the greatly curved hind tibiæ with a corresponding cavity,

E. purpureus Walk.

 Hind legs without tubercles and cavities*E. triplex* Walk.

* Vid. Meddel. Natur. Kjobenhavn, 297, 1898.

† Biol. C.-Am., Dipt., 1, 373.

‡ Trans. Am. Ent. Soc., xxviii, 248.

In my Revision of the Empidæ, page 397, attention was called to the fact that *Enoplempis cinerea* Bigot belongs to the genus *Empis*, and that as the name *Empis cinerea* is preoccupied, Bigot's insufficient description had better be cancelled. Mr. Melander, however,* takes the opposite course, and proposes the name *Empis bigoti* for the above species, thus adding another synonym to our already long list, since what is almost certainly the same species was described by the writer in his Revision, under the name of *Empis manca*, new species. The giving of new names to very imperfectly described species will hardly commend itself to students except in case that a more perfect description is added from the type or other authentic specimen.

Mr. Melander's statement† that my original description of *Empis pellucida* depends on that of *E. virgata* is erroneous, as any student can ascertain by turning to that description.‡ The latter is complete in itself, and contains no reference to the description of *virgata*, or any other species.

Platypalpus trivialis Loew has wholly yellow femora and tibiæ in both sexes; the U. S. National Museum possesses a series of specimens of both sexes from each of the following localities: White Mountains, New Hampshire; Beverly, Massachusetts; Las Vegas Hot Springs, New Mexico, and Colorado.

Tachydromia inusta Melander, *T. corticalis* Melander and *T. brachialis* Melander belong to *Tachypeza*. On the other hand, *Tachypeza pusilla* Loew belongs to *Tachydromia*. *Tachypeza clavipes* Loew, *T. rapax* Loew, *T. rostrata* Loew and *T. winthemi* Zetterstedt, all belong to *Tachypeza*, as originally referred. *Tachypeza rapax* Loew is evidently a synonym of *Sicus fenestratus* Say; I know of no other species in this group which has the front coxæ marked with black, as mentioned by Say, a character peculiar to the male, the female having the front coxæ and femora unspotted, and closely resembling *rostrata*, from which it may easily be distinguished by the yellow hind tibiæ with only their apices brown or black.

Drapetis medetera Melander belongs to *Elaphropeza*, as is evident from the greatly elongated third antennal joint. *Drapetis flavida* Williston belongs to *Tachydromia*, as already stated in my paper on the Diptera of Porto Rico;§ not only are the front femora considerably thickened, but those of the male bear several spinous bristles on the under side.

Tachydromia nubifera Coquillett belongs to the recently erected genus *Coloboneura*.

* Trans. Am. Ent. Soc., xxviii, p. 319.

† Trans. Am. Ent. Soc., xxviii, p. 313.

‡ Proc. Wash. Acad. Sci., ii, p. 408.

§ Proc. U. S. Nat. Mus., xxii, 251, May 12, 1900.

Phoneutisca bimaculata Loew is evidently a synonym of *Tachydromia maculipennis* Walker; both were founded on specimens from the far North, and no other known species in this group has the wings marked "with a large brown spot on the fore border at two-thirds of the length from the base," as described by Walker.

DESCRIPTIONS OF NEW SPECIES.

***Tachydromia varipennis*, n. sp.**

Near *schwarzi*, but the two brown cross-bands on each wing broadly united along the costa. Head black front polished, only slightly narrowed anteriorly, antennæ yellowish brown, about one-third as long as the arista, the third joint short-oval, eyes contiguous below the antennæ, palpi whitish, a black bristle at apex of each, proboscis black; body black, polished, the front edge of pleura whitish pruinose, scutellum bearing two bristles; legs yellowish, the tibiæ, hind femora, and apices of tarsi brownish, legs without bristles, no spurs at apices of middle tibiæ; halteres whitish; wings smoky brown, the base as far as base of second vein, the apex nearly as far as apex of this vein, and a half-band extending from apex of fifth vein to the third vein, whitish hyaline; marginal cell at apex of first vein scarcely half as wide as the submarginal at the same point, apex of third vein nearly three times as far from apex of the second as from that of the fourth, small crossvein nearly three-fourths of the length of the second basal cell. Length, 2 mm.

A specimen of each sex, collected at Franconia, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6774, U. S. National Museum.

***Tachydromia lata*, n. sp.**

A very broad, robust form, the mesonotum broader than long. Head black, front subopaque, strongly narrowed anteriorly, antennæ brown, one-third as long as the arista, the third joint short-oval, eyes contiguous for a short distance on the face, palpi yellow, a black bristle at apex of each, proboscis black; body black, with a strong brassy tinge, polished, mesonotum covered with depressed yellow hairs, scutellum bearing two long and a few short bristles; legs brown, the front coxæ, both ends of their femora, their tibiæ, and bases of their tarsi yellow; sometimes the yellow coloring is much more extended; a preapical bristle on front side of each femur, a long preapical bristle on inner side of each front and middle tibia and three short bristles at apex of front side of each hind tibia; halteres yellow; wings hyaline, marginal cell at apex of first vein as wide as the submarginal at the same point, apex of third vein nearly twice as far from apex of the second as from that of the fourth, small crossvein near middle of second basal cell. Length, 2 mm.

Two specimens, apparently males, collected at Lake Worth and Biscayne Bay, Florida, by Mrs. Annie T. Slosson.

Type.—No. 6775, U. S. National Museum.

Coloboneura nana, n. sp.

Black, the legs and halteres yellow; front opaque, considerably narrowed anteriorly, antennæ slightly over half as long as the arista, the third joint oval and with a short prolongation at its apex, eyes widely separated on the face; thorax opaque, gray pruinose; femora with a short preapical bristle on the front side, middle and hind tibiæ bearing several rather long bristles; wings hyaline, marginal cell at apex of first vein slightly wider than the submarginal at the same point, apex of third vein nearly three times as far from apex of the second as from that of the fourth, second basal cell slightly shorter than the first. Length, 1 mm.

Four male specimens, collected at Lake Worth, Florida, by Mrs. Annie T. Slosson.

Type.—No. 6776, U. S. National Museum.

Tachypeza pruinosa, n. sp.

Near *rostrata*, but the mesonotum more densely pruinose, that on the front end and sides bluish gray, encroaching considerably on the upper part of the propleura and mesopleura. Head black, front only slightly narrowed anteriorly, eyes widely separated above the antennæ, contiguous for a considerable distance over the face, antennæ reddish yellow, about one-fourth as long as the style, the third joint oval, palpi yellow, proboscis reddish yellow; body black; legs brown, the coxæ, front and middle tarsi except the last joint, also base of hind tarsi and ends of hind femora narrowly, yellow, first two pairs of femora more yellowish brown, their tibiæ with a yellow vitta on the outer side; front femora greatly thickened, without spinules on the under side, middle femora slightly thickened, the under side with minute spinules and with a rather long hair at the base, inner side of first two pairs of tibiæ and under side of first joint of their tarsi bearing many spinules, middle tibiæ without apical spurs; halteres yellow; wings grayish hyaline, submarginal cell above small crossvein slightly wider than the marginal at the same point, apex of third vein nearly twice as far from apex of second as from that of the fourth, small crossvein oblique, about its length before apex of second basal cell, crossvein at apex of this cell perpendicular. Length, 3.5 mm.

A female specimen collected at Atherton, Missouri, April 30, by Mr. C. F. Adams.

Type.—No. 6777, U. S. National Museum.

Ædalea pruinosa, n. sp.

Head black, front and face polished, antennæ dark brown, the third joint four times as long as wide, gradually tapering toward the apex, about eight times as long as the style, proboscis black, the labella yellowish; thorax black, somewhat opaque, thinly grayish pruinose, a polished streak above the middle coxæ, scutellum bearing four bristles; abdomen brownish yellow; legs, including the coxæ, yellow, the apical portion of the hind tibiæ brownish, tarsi toward their apices brown; wings

hyaline, stigma obsolete, anterior intercalary vein obliterated before reaching the wing margin, last section of fifth vein slightly over half as long as the preceding section; halteres yellow. Length, 2.5 mm.

A female specimen collected at Franconia, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6778, U. S. National Museum.

***Anthalia stigmalis*, n. sp.**

Near *bulbosa*, but with a dark brown stigma. Black; third joint of antennæ broadly oval, only slightly longer than broad, about four times as long as the style; proboscis slender, projecting forward about length of the third antennal joint beyond the oral margin, slightly longer than the palpi; eyes contiguous on the front; body somewhat polished; wings hyaline, venation complete, veins and stigma dark brown. Length, 1.5 mm.

Two males collected at Port Renfrew, British Columbia, received from Prof. J. S. Hine.

Type.—No. 6780, U. S. National Museum.

***Anthalia flava*, n. sp.**

Head and its members brown, the lower part of occiput and the front sometimes yellowish, third joint of antennæ short-oval, only slightly longer than wide, about four times as long as the style, proboscis about one-fourth as long as height of head; body, halteres and legs yellow, apices of tarsi brown, thorax somewhat polished, the hairs and bristles black; wings hyaline, veins yellow, stigma obsolete, venation complete last section of fifth vein slightly longer than the preceding section. Length, 1 mm.

One male and nine females collected on Mt. Washington, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6779, U. S. National Museum.

***Microphorus gilvihirtus*, n. sp.**

Differs from *Anthalia flava* as follows: Head and first two joints of antennæ yellow, third joint of antennæ elongate-oval, slightly over twice as long as wide, the style minute, hairs and bristles of thorax yellow, last section of the fifth vein nearly twice as long as the preceding section. Length, slightly over 1 mm.

A female specimen collected at Franconia, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6781, U. S. National Museum.

***Microphorus obscurus*, n. sp.**

Black; eyes contiguous on the front, third joint of antennæ elongate-conical, slightly widening near the base and then tapering gradually to the apex, three and one-half times as long as broad, nearly twice as long as the style, proboscis slender, directed forward, projecting the length of third antennal joint beyond the oral margin, palpi only slightly project-

ing; mesonotum opaque, velvety, its hairs and bristles black, hairs of abdomen yellowish: hind tibiæ without long hairs, distinctly dilated, as are also the first two joints of their tarsi; wings hyaline, veins brown, stigma pale brown, last two sections of the fifth vein subequal. Length, 1.5 mm.

A male specimen collected at Franconia, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6782, U. S. National Museum.

***Empis exilis*, n. sp.**

Head black, eyes contiguous, the upper facets not larger than the lower, face somewhat polished, proboscis yellow, slightly longer than height of head; antennæ brown, the third joint very elongate-lanceolate, about five times as long as the style; body slender, black, a large yellow spot on each side of the first four abdominal segments, venter yellow, body polished, except a cordate, gray pruinose spot in front of the scutellum, hairs of body pale, bristles of mesonotum and scutellum black, scutellum bearing two bristles, hypopygium small, the central filament arcuate, exposed except at the apex; legs, including the coxæ, yellow, the apical portion of the first two pairs of tarsi, whole of the hind ones, apical fourth of the hind tibiæ and outer half of the hind femora except at the apex, brown; hind femora considerably thickened, the under side beset with black, spinous bristles, middle and hind tibiæ bearing a few rather short bristles on the outer side, front and middle metatarsi subequal in size, about one-third as thick as the hind ones; wings hyaline, stigma obsolete, last section of fifth vein slightly longer than the preceding, sixth vein prolonged almost to the wing-margin; halteres yellowish. Length, 3.5 mm.

A male specimen collected at Atherton, Missouri, May 11, by Mr. C. F. Adams.

Type.—No. 6783, U. S. National Museum.

***Empis scoparia*, n. sp.**

Head black, eyes widely separated, facets of a uniform size, front and face polished, antennæ brown, the third joint lanceolate, about four times as long as wide, six times as long as the style; proboscis yellowish brown, one and one-half times as long as height of head; body black, polished, the margin of mesonotum, whole of pleura, scutellum and metanotum, opaque, gray pruinose, hairs of abdomen and those in front of the halteres mixed brown and yellowish, scutellum bearing four bristles, hypopygium large, central filament exposed at the apex, in front of the hypopygium on the venter is a large prominence tipped with a large cluster of rather short black bristles; coxæ black, legs dark yellow, the tarsi except their bases brown, femora slender, under side of the last two pairs beset with rather short bristles, the outer side of the tibiæ bearing a few bristles, hind metatarsi slightly thicker than the others; wings hyaline, stigma gray, venation complete, sixth vein prolonged to the wing margin; halteres yellow. Length, 6 mm.

A male specimen collected at Franconia, N. H., by Mrs. Annie T. Slosson.

Type.—No. 6784, U. S. National Museum.

***Empis brunnea*, n. sp.**

Black, the legs dark brown, the halteres yellowish brown, eyes contiguous, the upper facets distinctly larger than the lower ones, third joint of antennæ elongate-lanceolate, about four times as long as wide, slightly over twice as long as the style, proboscis somewhat longer than height of head; body subopaque, thinly grayish pruinose, hairs in front of the halteres brown, scutellum bearing four bristles, hypopygium very small, central filament short, very robust, exposed except at the apex; legs slender, almost bare, the hind tibiæ with a few rather long bristly hairs on the outer side, hind metatarsi nearly three times as thick as the others; wings hyaline, stigma brown, venation complete, sixth vein prolonged to the wing-margin, but the subterminal portion faint. Length, 3 mm.

Three males collected by the writer in Los Angeles Co., California, in February.

Type.—No. 6785, U. S. National Museum.

***Empis hirtipes*, n. sp.**

Black; eyes contiguous, upper facets larger than the lower ones, third joint of antennæ elongate-lanceolate, about four times as long as wide, twice as long as the style, proboscis more than twice as long as height of head; body opaque, gray pruinose, hairs in front of the halteres black, scutellum bearing two bristles, hypopygium small, the filament hidden except at the base; legs rather slender, tarsi considerably thickened, the front and middle ones slightly thicker than the hind ones, all tarsi and the middle and hind tibiæ bearing many long hairs, wanting on the inner side of the hind tibiæ; wings smoky hyaline, brown along the costa, fourth vein obliterated before reaching the wing-margin, the sixth prolonged to this margin, first posterior cell slightly wider than the first submarginal. Length, 4 mm.

A male specimen collected July 19 by Mr. C. H. T. Townsend, at Rio Ruidosa, White Mountains, New Mexico (altitude about 6500 feet).

Type.—No. 6786, U. S. National Museum.

***Empis tenebrosa*, n. sp.**

Black; third joint of antennæ elongate, sublanceolate, nearly three times as long as wide, only slightly longer than the style, front and face polished, proboscis five times as long as height of head; thorax and scutellum opaque, gray pruinose, the hairs and bristles black, scutellum bearing two bristles; abdomen slightly polished; legs rather slender, middle metatarsi noticeably more slender than the others, legs bearing many rather short bristly hairs and with scales on the inner and outer sides of the front

tibiæ, and on the upper side and a few on the apical fourth of under side of the middle and hind femora; wings brownish, stigma dark brown, fourth vein obliterated before reaching the wing-margin, first posterior cell of the same width as the first submarginal, sixth vein prolonged to the wing margin. Length, 4 mm.

Two females collected at Las Vegas Hot Springs, New Mexico, August 7, by Mr. H. S. Barber, and Rio Ruidosa, White Mountains, New Mexico (altitude about 6500 feet), July 19, by Mr. C. H. T. Townsend.

Type.—No. 6787, U. S. National Museum.

Empis squamipes, n. sp.

Black; front opaque, gray pruinose, third joint of antennæ pear-shaped, less than twice as long as wide, slightly shorter than the style, proboscis five times as long as height of head; body opaque, gray pruinose, hairs and bristles black, scutellum bearing two bristles; legs slender, the hind ones noticeably dilated, hind metatarsi much thicker than the others and bearing several bristly hairs, under side of front femora and apical third of outer side of their tibiæ bearing a few narrow scales, both sides of the remaining femora and tibiæ densely beset with long scales, smallest on inner side of the middle tibiæ; wings hyaline, pale smoky at the base and along the costa, stigma wanting, first submarginal and first posterior cells equal in width, fourth and sixth veins obliterated before reaching the wing-margin. Length, 3 mm.

A female specimen collected at the head of Rio Piedras Verdes, Sierra Madre, Chihuahua, Mexico (altitude about 7500 feet), August 11, by Mr. C. H. T. Townsend.

Type.—No. 6788, U. S. National Museum.

Empis frontalis, n. sp.

Black, the palpi, halteres, and apical portion of claspers, yellow; eyes widely separated, facets of a uniform size, front and face opaque, thinly gray pruinose, a stripe of short hairs on each side of middle of front, third joint of antennæ sublanceolate, slightly over twice as long as broad, as long as the style, proboscis two and one-half times as long as height of head; body opaque, gray pruinose, hairs and bristles black, mesonotum marked with four black vittæ, a large cluster of bristly hairs above the front coxæ, scutellum bearing about ten bristles, hypopygium rather large, filament hidden except near the base; legs robust, femora of male bearing many hairs and bristles, tibiæ almost bare, metatarsi slender and of nearly an equal thickness; wings hyaline, stigma obsolete, veins complete, yellow, becoming brown apically. Length, 6 mm.

A specimen of each sex collected on St. George Island, Alaska, July 26, by Prof. Trevor Kincaid.

Type.—No. 6789, U. S. National Museum.

Lamprempis setigera, n. sp.

♂. Head greenish black, occiput opaque, gray pruinose, eyes contiguous, the upper facets much larger than the lower, antennæ dark brown, the two basal joints yellowish, the third lanceolate, three times as long as wide, almost twice as long as the style, proboscis brown and yellowish, one and one-half times as long as height of head; body polished, metallic green, the abdomen partly steel-blue and violet, pleura opaque, gray pruinose, the hairs and bristles black, scutellum bearing about ten bristles, hypopygium large, open, the lower piece directed forward along the venter, at its apex bearing a long, arcuate, yellow seta, under side of hypopygium and the venter bearing several long, bristly hairs; coxæ and femora yellow, tibiæ and tarsi brownish, femora beset with short hairs, outer side of tibiæ bearing several rather long bristles, front metatarsi considerably thicker than any of the others; wings grayish hyaline, stigma brown, veins between first three posterior cells becoming subobsolete at their apices, sixth vein obliterated before reaching the wing-margin; halteres brown. Length, 4 mm.

♀. Differs from the male, besides the sexual characters, as follows: Upper side of middle femora bearing several dilated bristles, the under side, as well as both sides of the hind femora and their tibiæ, ciliate with scales.

Three males and two females collected at Baracoa, Cuba, in August and September, by Mr. August Busck.

Type.—No. 6793, U. S. National Museum.

MYRMELEONIDÆ FROM ARIZONA.

By ROLLA P. CURRIE.

As first contemplated, this paper was to be simply a report upon the ant-lion flies collected in Arizona by Messrs. E. A. Schwarz and H. S. Barber during the summer of 1901. Afterwards the writer decided to enlarge its scope and, following the example of Mr. Nathan Banks in his recently published paper, "Neuropteroid Insects from Arizona,"* make it as complete a list as possible of the Arizona species.

Up to the year 1897 but little was known concerning the Myrmeleonidæ of Arizona. Hagen's "Synopsis of the Neuroptera of North America" contains no Arizona records in this group of insects, and there are but two in his "Stray Notes on Myrmeleonidæ."† Much of our present knowledge concerning the ant-lion flies of this Territory is due to the efforts of Dr. R.

*Proc. Ent. Soc. Wash., v, No. 4, pp. 237-245 (author's extras published April 29, 1903).

†These are: *Brachyneurus carrizonus* Hagen, Can. Ent., xx, No. 5, p. 94, May, 1888, and *B. sackeni* Hagen, *loc. cit.*, p. 95. Both are from Tucson.